

# Science Education - Bachelor of Science in Education

- Chemistry Education
- Earth Science Education
- Earth Science/Chemistry Education
- Earth Science/Life Science Education
- Life Science Education
- Life Science/Chemistry Education
- Physical Science Education

## Requirements for all Science Education Programs

Code	Title	Credit Hours
<b>Required Courses</b>		
EDL 204	Sociocultural Studies in Education	3
EDP 201	Human Development and Learning in Social and Educational Contexts	3
EDP 256	Psychology of the Exceptional Learner	3
EDT 190	Introduction to Education	3
Fall field block courses - take all three concurrently:		
EDP 301A	Assessment and Evaluation in Educational Settings	3
EDT 323	Teaching English Language Learners in PK-12: Instructional Theories & Practices	3
EDT 431	Adolescent Science Methods I	3
Spring field block courses - take all three concurrently:		
EDT 421A	Classroom Management in the 21st Century	2
EDT 432	Adolescent Science Methods II	3
EDT 446A	Integrating Literacy Across the Content Areas	3
Supervised teaching semester:		
EDT 419A	Teaching Internship- Adolescent	15
Total Credit Hours		44

## Chemistry Education: Bachelor of Science in Education

Code	Title	Credit Hours
<b>Required courses</b>		
CHM 141 & CHM 144	College Chemistry and College Chemistry Laboratory	5
CHM 142 & CHM 145	College Chemistry and College Chemistry Laboratory	5

CHM 241 & CHM 244	Organic Chemistry and Organic Chemistry Laboratory	5
CHM 242 & CHM 245	Organic Chemistry and Organic Chemistry Laboratory	5
CHM 332 & 332L	Outlines of Biochemistry and Outlines of Biochemistry Lab	4
CHM 363 & CHM 364	Analytical Chemistry and Analytical Chemistry Laboratory	5
CHM 471	Biophysical Chemistry I	3
CHM 491	Chemistry in Societal Issues	3
MTH 151	Calculus I	5
PHY 111	Astronomy and Space Physics	3
PHY 161	Physics for the Life Sciences with Laboratory I	4
STA 261	Statistics	4
Select one of the following introductory biology courses:		4
BIO/MBI 115	Biological Concepts: Ecology, Evolution, Genetics, and Diversity	
BIO/MBI 116	Biological Concepts: Structure, Function, Cellular, and Molecular Biology	
Select one of the following evolution courses:		3-4
BIO 206	Evolutionary Biology	
GLG 204	Survival on an Evolving Planet	
Select one of the following inquiry courses		3
EDT 415	Inquiry Into Life Science	
or PHY 215	Physics by Inquiry	
Select one of the following introductory geology courses plus lab:		4
GLG 111 & GLG 115L	The Dynamic Earth and Understanding the Earth	
GLG 121 & GLG 115L	Environmental Geology and Understanding the Earth	
GLG 141 & GLG 115L	Geology of U.S. National Parks and Understanding the Earth	
Select additional 3-6 credit hours of Science/Science Education Research courses to be chosen with advisor <sup>1</sup>		3-6
Total Credit Hours		68-72

<sup>1</sup> Select from the following courses: BIO, CHM, PHY x77 (x=first, second, third, fourth year), BIO 419R, CHM 490.

## Earth Science Education: Bachelor of Science in Education

Code	Title	Credit Hours
CHM 141 & CHM 144	College Chemistry and College Chemistry Laboratory	5
CHM 142 & CHM 145	College Chemistry and College Chemistry Laboratory	5
GLG 201	Mineralogy	4
GLG 211	Chemistry of Earth Systems	3
GLG 244	Oceanography	3
GLG 301	Sedimentology and Stratigraphy	4
GLG 307	Water and Society	3

PHY 111	Astronomy and Space Physics	3
PHY 161	Physics for the Life Sciences with Laboratory I	4
or PHY 191	General Physics with Laboratory I	
STA 261	Statistics	4
Select one of the following introductory geology course plus lab:		4
GLG 111 & GLG 115L	The Dynamic Earth and Understanding the Earth	
GLG 121 & GLG 115L	Environmental Geology and Understanding the Earth	
GLG 141 & GLG 115L	Geology of U.S. National Parks and Understanding the Earth	
Select the following evolution course:		
BIO 206	Evolutionary Biology	3
Select one of the following introductory biology courses:		4
BIO/MBI 115	Biological Concepts: Ecology, Evolution, Genetics, and Diversity	
BIO/MBI 116	Biological Concepts: Structure, Function, Cellular, and Molecular Biology	
Select one of the following inquiry courses:		3
EDT 415	Inquiry Into Life Science	
or PHY 215	Physics by Inquiry	
Select one of the following field courses:		3
BIO 155	Field Botany	
BIO/MBI 333	Field Ecology	
Select additional 3-6 credit hours of Science/Science Education Research courses with an Advisor <sup>1</sup>		3-6
Total Credit Hours		58-61

<sup>1</sup> Select from the following courses: BIO, CHM, GLG, PHY x77 (x=first, second, third, fourth year), BIO 419R, CHM 490.

## Earth Science/Chemistry Education: Bachelor of Science in Education

Code	Title	Credit Hours
<b>Required courses</b>		
CHM 141 & CHM 144	College Chemistry and College Chemistry Laboratory	5
CHM 142 & CHM 145	College Chemistry and College Chemistry Laboratory	5
CHM 363 & CHM 364	Analytical Chemistry and Analytical Chemistry Laboratory	5
GEO 121	Earth's Physical Environment	4
PHY 111	Astronomy and Space Physics	3
PHY 161	Physics for the Life Sciences with Laboratory I	4
STA 261	Statistics	4
Select one of the following introductory geology courses:		4
GLG 111 & GLG 115L	The Dynamic Earth and Understanding the Earth	
GLG 121 & GLG 115L	Environmental Geology and Understanding the Earth	

GLG 141 & GLG 115L	Geology of U.S. National Parks and Understanding the Earth	
Select one of the following introductory biology courses:		4
BIO/MBI 115	Biological Concepts: Ecology, Evolution, Genetics, and Diversity	
BIO/MBI 116	Biological Concepts: Structure, Function, Cellular, and Molecular Biology	
Select two of the following Earth Science electives:		6-8
GEO 211	Global Change	
GLG 201	Mineralogy	
GLG 211	Chemistry of Earth Systems	
GLG 244	Oceanography	
GLG 307	Water and Society	
GLG 322	Structural Geology	
GLG 357	Igneous/Metamorphic Petrology	
Select one of the following Organic Chemistry courses:		4-5
CHM 231	Fundamentals of Organic Chemistry	
CHM 241 & CHM 244	Organic Chemistry and Organic Chemistry Laboratory	
CHM 242 & CHM 245	Organic Chemistry and Organic Chemistry Laboratory	
Select the following evolution course:		
BIO 206	Evolutionary Biology	3
Select one of the following inquiry courses:		3
EDT 415	Inquiry Into Life Science	
or PHY 215	Physics by Inquiry	
Select one of the following field courses:		3
BIO 155	Field Botany	
BIO/MBI 333	Field Ecology	
Select additional 3-6 credit hours of Science/Science Education Research courses to be chosen with advisor <sup>1</sup>		3-6
Total Credit Hours		60-66

<sup>1</sup> Select from the following courses: BIO, CHM, GLG, PHY x77 (x=first, second, third, fourth year), BIO 419R, CHM 490.

## Earth Science/Life Science Education: Bachelor of Science in Education

Code	Title	Credit Hours
<b>Required courses</b> <sup>1</sup>		
BIO/MBI 115	Biological Concepts: Ecology, Evolution, Genetics, and Diversity	4
BIO/MBI 116	Biological Concepts: Structure, Function, Cellular, and Molecular Biology	4
BIO 203	Introduction to Cell Biology	3
BIO 342	Genetics	3
CHM 141 & CHM 144	College Chemistry and College Chemistry Laboratory	5
CHM 142 & CHM 145	College Chemistry and College Chemistry Laboratory	5
CHM 231	Fundamentals of Organic Chemistry	4
STA 261	Statistics	4

GEO 121	Earth's Physical Environment	4
PHY 111	Astronomy and Space Physics	3
PHY 161	Physics for the Life Sciences with Laboratory I	4
STA 261	Statistics	4
Select one of the following Evolution courses:		3-4
BIO 206	Evolutionary Biology	
GLG 204	Survival on an Evolving Planet	
Select one of the following field courses:		2-6
BIO 155	Field Botany	
BIO/MBI 333	Field Ecology	
GLG/GEO/IES/LAS 412	Tropical Ecosystems of Costa Rica	
GLG/GEO/LAS 413/IES 423	Tropical Marine Ecology	
GLG 499X	Argentina Historical Geology	
Select one of the following Physiology courses:		4
BIO 161	Principles of Human Physiology	
BIO 305	Human Physiology	
Select the following Ecology course:		
BIO 209	Fundamentals of Ecology	3
Select one of the following inquiry courses:		3
EDT 415	Inquiry Into Life Science	
or PHY 215	Physics by Inquiry	
Select one of the following introductory geology courses plus lab:		4
GLG 111 & GLG 115L	The Dynamic Earth and Understanding the Earth	
GLG 121 & GLG 115L	Environmental Geology and Understanding the Earth	
GLG 141 & GLG 115L	Geology of U.S. National Parks and Understanding the Earth	
Select two of the following Earth Science electives:		6-8
GLG 201	Mineralogy	
GLG 211	Chemistry of Earth Systems	
GLG 244	Oceanography	
GLG 301	Sedimentology and Stratigraphy	
GLG 307	Water and Society	
GLG 322	Structural Geology	
GLG 335	Ice Age Earth	
GLG 357	Igneous/Metamorphic Petrology	
Select additional 3-6 credits of Science/Science Education Research courses to be determined with advisor <sup>1</sup>		
Total Credit Hours		72-79

<sup>1</sup> Select from the following courses: BIO, CHM, GLG, PHY x77 (x=first, second, third, fourth year), BIO 419R, CHM 490.

### Life Science Education: Bachelor of Science in Education

Code	Title	Credit Hours
<b>Required Courses</b>		

BIO/MBI 115	Biological Concepts: Ecology, Evolution, Genetics, and Diversity	4
BIO/MBI 116	Biological Concepts: Structure, Function, Cellular, and Molecular Biology	4
BIO 203	Introduction to Cell Biology	3
BIO 342	Genetics	3
CHM 141 & CHM 144	College Chemistry and College Chemistry Laboratory	5
CHM 142 & CHM 145	College Chemistry and College Chemistry Laboratory	5
CHM 231	Fundamentals of Organic Chemistry	4
PHY 111	Astronomy and Space Physics	3
PHY 161	Physics for the Life Sciences with Laboratory I	4
STA 261	Statistics	4
Select the following Evolution course:		
BIO 206	Evolutionary Biology	3
Select one of the following field courses:		2-6
BIO 155	Field Botany	
BIO/MBI 333	Field Ecology	
GLG/GEO/IES/LAS 412	Tropical Ecosystems of Costa Rica	
GLG/GEO/LAS 413/IES 423	Tropical Marine Ecology	
GLG 499X	Argentina Historical Geology	
Select one of the following Physiology courses:		4
BIO 161	Principles of Human Physiology	
BIO 305	Human Physiology	
Select the following Ecology course:		
BIO 209	Fundamentals of Ecology	3
Select one of the following inquiry courses:		3
EDT 415	Inquiry Into Life Science	
or PHY 215	Physics by Inquiry	
Select one of the following introductory geology courses plus lab:		4
GLG 111 & GLG 115L	The Dynamic Earth and Understanding the Earth	
GLG 121 & GLG 115L	Environmental Geology and Understanding the Earth	
GLG 141 & GLG 115L	Geology of U.S. National Parks and Understanding the Earth	
Select from the following research courses: BIO, CHM, PHY, x77 (x=first, second, third, fourth year) BIO 419R, CHM 490 -- need 3-6 hours of research.		
Total Credit Hours		58-62

### Life Science/Chemistry Education: Bachelor of Science in Education

Code	Title	Credit Hours
<b>Required Courses</b> <sup>1</sup>		
BIO/MBI 115	Biological Concepts: Ecology, Evolution, Genetics, and Diversity	4

BIO/MBI 116	Biological Concepts: Structure, Function, Cellular, and Molecular Biology	4	CHM 141 & CHM 144	College Chemistry and College Chemistry Laboratory	5
BIO 203	Introduction to Cell Biology	3	CHM 142 & CHM 145	College Chemistry and College Chemistry Laboratory	5
BIO 342	Genetics	3	CHM 241 & CHM 244	Organic Chemistry and Organic Chemistry Laboratory	5
CHM 141 & CHM 144	College Chemistry and College Chemistry Laboratory	5	CHM 242 & CHM 245	Organic Chemistry and Organic Chemistry Laboratory	5
CHM 142 & CHM 145	College Chemistry and College Chemistry Laboratory	5	CHM 363	Analytical Chemistry	3
CHM 231	Fundamentals of Organic Chemistry	4	or CHM 375	Analytical Chemistry for Majors	
CHM 363	Analytical Chemistry	3	MTH 151	Calculus I	5
PHY 111	Astronomy and Space Physics	3	MTH 251	Calculus II	4
PHY 161	Physics for the Life Sciences with Laboratory I	4	MTH 252	Calculus III	4
STA 261	Statistics	4	PHY 111	Astronomy and Space Physics	3
Select the following Evolution course:			PHY 191	General Physics with Laboratory I	5
BIO 206	Evolutionary Biology	3	PHY 192	General Physics with Laboratory II	5
Select one of the following introductory geology courses plus lab:			PHY 281	Contemporary Physics I: Foundations	3
GLG 111 & GLG 115L	The Dynamic Earth and Understanding the Earth		Select one of the following introductory biology courses:		
GLG 121 & GLG 115L	Environmental Geology and Understanding the Earth		BIO/MBI 115	Biological Concepts: Ecology, Evolution, Genetics, and Diversity	4
GLG 141 & GLG 115L	Geology of U.S. National Parks and Understanding the Earth		BIO/MBI 116	Biological Concepts: Structure, Function, Cellular, and Molecular Biology	
Select one of the following Physiology courses:			Select one of the following Earth systems courses:		
BIO 161	Principles of Human Physiology	4	GLG 111 & GLG 115L	The Dynamic Earth and Understanding the Earth	4
BIO 305	Human Physiology		GLG 121 & GLG 115L	Environmental Geology and Understanding the Earth	
Select the following Ecology course:			GLG 141 & GLG 115L	Geology of U.S. National Parks and Understanding the Earth	
BIO 209	Fundamentals of Ecology	3	Select one of the following inquiry courses:		
Select one of the following inquiry courses:			EDT 415	Inquiry Into Life Science	3
EDT 415	Inquiry Into Life Science		or PHY 215	Physics by Inquiry	
or PHY 215	Physics by Inquiry		Select one of the following Evolution courses:		
Select one of the following field courses:			BIO 206	Evolutionary Biology	3-4
BIO 155	Field Botany	2-6	GLG 204	Survival on an Evolving Planet	
BIO/MBI 333	Field Ecology		Select 3-6 credits of additional Science/Science Education Research courses with advisor <sup>1</sup>		
GLG/GEO/IES/LAS 412	Tropical Ecosystems of Costa Rica		Total Credit Hours		
GLG/GEO/LAS 413/IES 423	Tropical Marine Ecology		66-67		
GLG 499X	Argentina Historical Geology				
Select additional 3-6 credits of Science/Science Education Research courses to be chosen with advisor <sup>2</sup>					
Total Credit Hours		61-65			

<sup>1</sup> You need TWO courses, BIO 115+BIO 116, to meet prerequisites for upper-level BIO courses.

<sup>2</sup> Select from the following: BIO, CHM, GLG, PHY x77 (x=first,second,third, fourth year), BIO 419R, CHM 490.

## Physical Science Education: Bachelor of Science in Education

Code	Title	Credit Hours
<b>Required courses</b>		

<sup>1</sup> Select from the following courses: BIO, CHM, PHY x77 (x=first, second, third, fourth year), BIO 419R, CHM 490.